WHAT IS CLAIMED IS:

1. A method for receiving an optical data signal, comprising the steps of:
   (1) receiving an optical data signal;
   (2) converting the optical signal to an electrical signal;
   (3) converting the electrical signal to a digital electrical signal; and
   (4) digitally processing the digital electrical signal.

2. The method according to claim 1, wherein step (4) comprises the step of equalizing the digital electrical signal.

3. The method according to claim 2, wherein step (4) further comprises the step of performing Viterbi equalization on the digital electric signal.

4. The method according to claim 2, wherein step (4) further comprises the step of performing feed-forward equalization on the digital electric signal.

5. The method according to claim 2, wherein step (4) further comprises the step of performing decision feedback equalization on the digital electric signal.

6. The method according to claim 2, wherein step (4) further comprises the step of performing Viterbi equalization and feed-forward equalization on the digital electric signal.

7. The method according to claim 2, wherein step (4) further comprises the step of performing Viterbi equalization and decision feedback equalization on the digital electric signal.

8. The method according to claim 2, wherein step (4) further comprises the step
performing one or more of the following types of equalization on the digital electric signal:
   Viterbi equalization;
   feed-forward equalization; and

decision feedback equalization.

9. An optical receiver, comprising:

an input;

an optical-to-electrical converter coupled to said input;

an analog-to-digital converter coupled to said optical-to-electrical converter;

an digital signal processor coupled to said analog-to-digital converter.

10. The optical receiver according to claim 9, wherein said digital signal processor includes an equalizer.

11. The optical receiver according to claim 10, wherein said equalizer comprises a Viterbi equalizer.

12. The optical receiver according to claim 8, wherein said equalizer comprises a feed-forward equalizer.

13. The optical receiver according to claim 8, wherein said equalizer comprises a decision feedback equalizer.

14. The optical receiver according to claim 8, wherein said equalizer comprises a Viterbi equalizer and a feed-forward equalizer.

15. The optical receiver according to claim 8, wherein said equalizer comprises a Viterbi equalizer and a decision feedback equalizer.

16. The optical receiver according to claim 8, wherein said equalizer comprises a feed-forward equalizer and a decision feedback equalizer.

17. The optical receiver according to claim 8, wherein said equalizer comprises one or more of:

a Viterbi equalizer;

a feed-forward equalizer; and

a decision feedback equalizer.

18. An optical receiver, comprising:
means for receiving an optical data signal;
means for converting the optical signal to an electrical signal;
means for converting the electrical signal to a digital electrical signal; and
means for digitally processing the digital electrical signal.

19. The system according to claim 18, wherein said means for digitally processing the digital electrical signal include means for equalizing the digital electrical signal.

20. The system according to claim 19, wherein said means for equalizing the digital electrical signal comprise means for performing Viterbi equalization on the digital electrical signal.

21. The system according to claim 19, wherein said means for equalizing the digital electrical signal comprise means for performing feed-forward equalization on the digital electrical signal.

22. The system according to claim 19, wherein said means for equalizing the digital electrical signal comprise means for performing decision feedback equalization on the digital electrical signal.

23. The system according to claim 19, wherein said means for equalizing the digital electrical signal comprise means for performing Viterbi equalization and feed-forward equalization on the digital electrical signal.

24. The system according to claim 19, wherein said means for equalizing the digital electrical signal comprises means for performing Viterbi equalization and decision feedback equalization on the digital electrical signal.

25. The method according to claim 1, wherein step (1) comprises the step of receiving the optical data signal from a multimode optical fiber and step (4)

comprises the step of equalizing multimode dispersion from the multimode optical fiber

26. The method according to claim 1, wherein step (1) comprises the step of receiving the optical data signal from a single mode optical fiber and step (4) comprises the step of equalizing chromatic and/or waveguide dispersion from the single mode optical fiber.

27. The method according to claim 1, wherein step (1) comprises the step of receiving the optical data signal from a multimode optical fiber and step (4) comprises the step of equalizing chromatic and/or waveguide dispersion from the multimode optical fiber.

28. The method according to claim 1, wherein step (1) comprises the step of receiving the optical data signal from a single mode optical fiber and step (4) comprises the step of equalizing polarization mode dispersion from the single mode optical fiber.

29. The method according to claim 1, wherein step (1) comprises the step of receiving the optical data signal from a single mode optical fiber and step (4) comprises the step of equalizing dispersion induced in the single mode optical fiber by laser chirping.

30. The method according to claim 1, wherein step (1) comprises the step of receiving the optical data signal from a transmitter that lacks external modulators, and step (4) comprises the step of equalizing excess dispersion induced by laser chirping.

31. The optical receiver according to claim 10, wherein said input is coupled to a multimode optical fiber and said equalizer equalizes multimode dispersion from the multimode optical fiber.

32. The optical receiver according to claim 10, wherein said input is coupled to a single mode optical fiber and said equalizer equalizes chromatic and/or waveguide dispersion from the single mode optical fiber.

33. The optical receiver according to claim 10, wherein said input is coupled to a multimode optical fiber and said equalizer equalizes chromatic and/or waveguide dispersion in the multimode optical fiber.

34. The optical receiver according to claim 10, wherein said input is coupled to a multimode optical fiber and said equalizer equalizes polarization mode dispersion from the single mode optical fiber.

35. The optical receiver according to claim 10, wherein said input is coupled to a single mode optical fiber and said equalizer equalizes dispersion induced in the single mode optical fiber by laser chirping.

36. The optical receiver according to claim 10, wherein said input receives the optical data signal from a transmitter that lacks external modulators, and said equalizer equalizes excess dispersion induced by laser chirping.

37. The optical receiver according to claim 19, wherein said means for receiving an optical signal is coupled to a multimode optical fiber and said means for equalizing comprises means for equalizing multimode dispersion from the multimode optical fiber.

38. The optical receiver according to claim 19, wherein said means for receiving an optical signal is coupled to a single mode optical fiber and said means for equalizing comprises means for equalizing chromatic and/or waveguide dispersion from the single mode optical fiber.

39. The optical receiver according to claim 19, wherein said means for receiving an optical signal is coupled to a multimode optical fiber and said means for equalizing comprises means for equalizing chromatic and/or waveguide dispersion in the multimode optical fiber.

40. The optical receiver according to claim 19, wherein said means for receiving an optical signal is coupled to a multimode optical fiber and said

means for equalizing comprises means for equalizing polarization mode dispersion from the single mode optical fiber.

41. The optical receiver according to claim 19, wherein said means for receiving an optical signal is coupled to a single mode optical fiber and said means for equalizing comprises means for equalizing dispersion induced in the single mode optical fiber by laser chirping.

42. The optical receiver according to claim 19, wherein said means for receiving an optical signal receives the optical data signal from a transmitter that lacks external modulators, and said means for equalizing comprises means for equalizing excess dispersion induced by laser chirping.

43. The method according to claim 1, wherein step (4) comprises the step of decoding a convolutional code.

44. The method according to claim 1, wherein step (4) comprises the step of decoding a trellis code.

45. The method according to claim 1, wherein step (4) comprises the step of decoding a block code.

46. The optical receiver according to claim 9, wherein said digital signal processor comprises a convolutional decoder.

47. The optical receiver according to claim 9, wherein said digital signal processor comprises a trellis decoder.

48. The optical receiver according to claim 9, wherein said digital signal processor comprises a block decoder.

49. The optical receiver according to claim 18, wherein said means for digitally processing the digital electrical signal comprises means for decoding a convolutional code.

50. The optical receiver according to claim 18, wherein said means for digitally processing the digital electrical signal comprises means for decoding a trellis code.

51. The optical receiver according to claim 18, wherein said means for digitally processing the digital electrical signal comprises means for decoding a block code.